i81 / i81-A
USER MANUAL

SIC MARKING
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PRESENTATION

Thank you for choosing a dot marking system (also called micro-percussion) for your marking applications.

SIC MARKING systems contribute to improve the tracability of your products while complying with the industrial standards.

We would like to welcome you as a user of our systems.

This guide contains the installation and use instructions of the dot marking type machines. We recommend that you read it carefully before installing the system.

Please contact our technical department for any further information.

INSTALLATION AND START-UP

1. UNPACKING

Except if we deliver the system, it is generally supplied in an appropriate packaging, which needs to be kept for any return of the material.

Remove the sub-systems carefully (controller, control handbox, possible options …) from their packages.

	The machine should only be lifted by the column and the base ; it should never be lifted by the head housing. **Weight of the machine : 35 kg**

2. INSTALLATION

2.1. Fastening

- ✓ Column-type machines
  - Install the machine on a rigid and stable support frame
  - After installing the entire marking machine, fasten the base with 2 M10 screws.

- ✓ Integrated-type machines
  - Install the machine on a rigid and stable support frame
  - Fasten the marking head onto the machine by complying with the indications of the integration plan, **available thread length 12 mm max.**

- ✓ Portable-type machines
  - No fastening : marking gun designed to be held manually

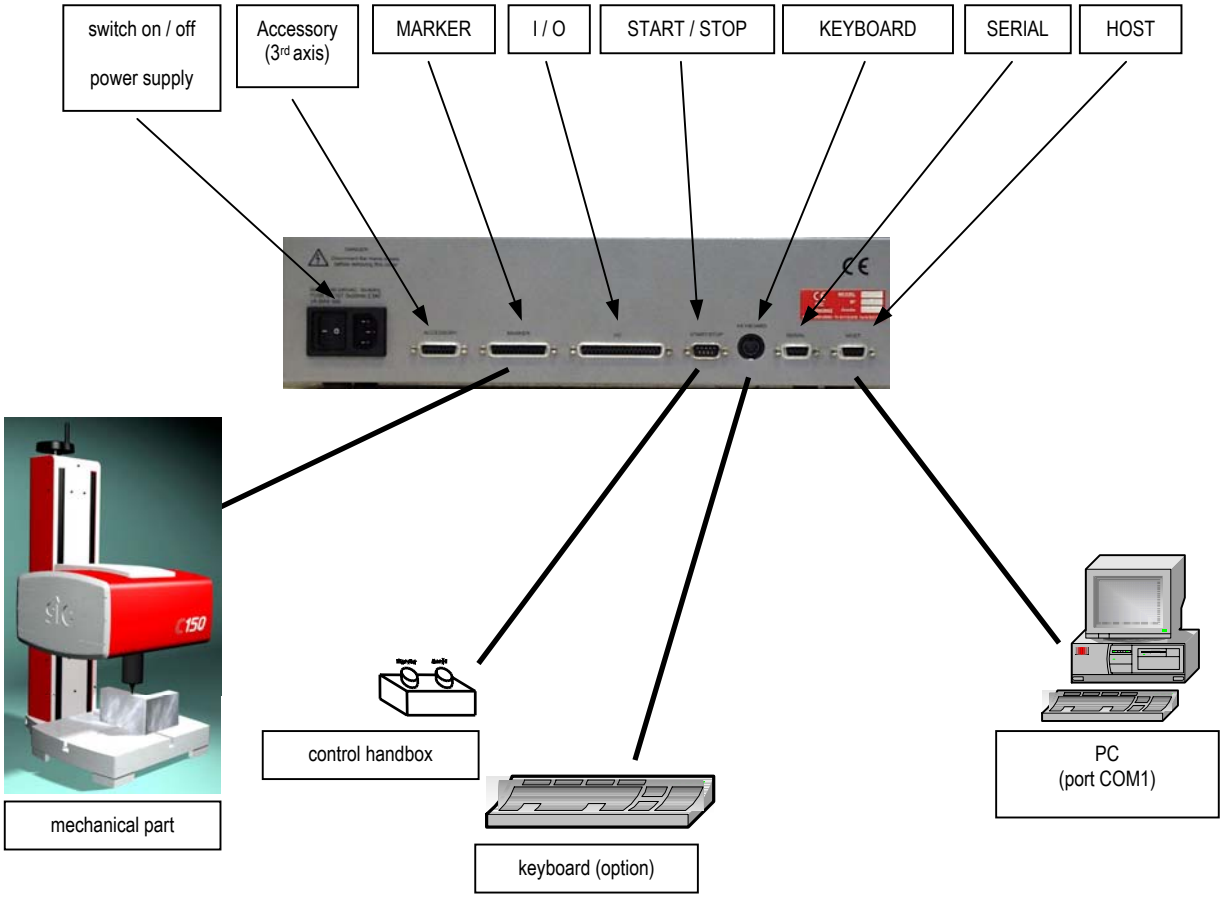
Note : The integrated and portable type machines are designed to function in all positions (vertical, horizontal, stylus towards the bottom or the top)

2.2. Connections

- Using the SUB-D 25 connector, connect the marking machine to the "marker" connector located at the rear of the controller. For the integrated type machines, proceed the same way using a connection cable.
- Correctly fasten the screws of the connector.

Note : for more details about the connections, please check the controller manual.

	Never unplug the controller when it is under tension as it may seriously damage the material.



USE OF THE MACHINE

1. SAFETY

	An intense use may cause the temperature of the system to rise up to 100°C.
	It is recommended to wear safety glasses.
	It is also recommended to wear a noise reducing helmet. Acoustic value of the machine : 76 dB on a piece of steel at medium speed
	The marking system should never be used without any surface to mark as the marking head may break.

2. CONTROLLER

See controller manual

3. SOFTWARE

See software manual

4. MARKING MACHINE

4.1. Positioning and clamping of the part to be marked

Even if the part is not submitted to high forces, it is necessary to immobilize it in order to reach an optimal marking quality.

Depending on the type of parts and the working conditions, the clamping system can vary from the simple manual fastening of the part against an angle iron (bracket) to the mechanical, magnetic or pneumatic fastening.

When using a marking gun, place the universal non-skid support against the surface to be marked and manually hold the gun during the marking.

The fastening device should maintain the part so that the stylus movements are parallel to the surface to be marked.

For the portable type machines, if the marking is always conducted on the same type of parts, we advise you to make a customized tooling to always keep the same marking position.

4.2. Machine adjustment

The marking quality highly depends on the part to be marked ; a smooth and flat surface is much easier to mark than a rough and irregular surface.

It is generally necessary to adapt the marking force to the height of the character. The smaller the character is, the lower the impact has to be to obtain a good legibility. The software also enables to choose various widths for the marking matrix.

To obtain a good marking quality, it is fundamental to adjust the force and the distance. When using marking guns, the distance between the stylus and the part can be modified by adjusting the position of the front plate.

For your information, hereafter are some values about the distance between the stylus and the part depending on the marking force :

Force	1	2	3	4	5	6	7	8	9
Minimum distance	0.5	0.5	0.5	1	1	2	3	5	6
Maximum distance	1	2	3	5	6	7	9	9	9

Maximum distance between the stylus and the part : 9 mm

We recommend that you make trials before marking a new part.

4.3. Launch / Stop the marking

- Set the controller in marking mode (for more information, please see the software manual)

- Position the part to be marked
- Launch the marking by pressing the "Start" button on the control handbox or the "Marche" button on the gun handle (portable type machine)
- To stop the marking, press the "Stop" button on the control handbox or press the "Marche" button of the gun handle for more than 2 seconds.

MAINTENANCE

1. INTRODUCTION

Dot marking machines have been developed and realized especially to meet the needs of our clients who want a machine which is :

- Performing,
- Robust,
- Reliable,
- Ergonomic.

It requires very little maintenance and if you observe the preventive maintenance recommendations, you will *increase the life-expectancy* of your machine.

However, if a problem of any kind should occur, please refer to this manual, which will help you solve the problem.

2. AFTER-SALES SERVICE

Please contact our local distributor first.
To find out about our local distributor, you can check our website :
www.sic-marking.com
If you can not reach our distributor, please call SIC MARKING at +33.4.72.54.80.00.

SIC MARKING or its distributor offer the following services :

- ✓ ***Phone support***

Please do not hesitate to contact us for any technical problem.

- ✓ ***On-site intervention***

We can help you install, set up the machine on-site, as well as repair it and provide personal training.

- ✓ ***Maintenance contract***

Thanks to the maintenance contract, we provide regular maintenance of your marking machine.

3. PREVENTIVE MAINTENANCE

If you want to keep your machine in a good working condition, it is necessary to do the following actions :

- **clean** the stylus pin guide and the stylus assembly regularly
- **avoid** dust and abrasive particles on the guiding and driving elements

How to clean the stylus pin guide and the stylus assembly

- Unplug the marking machine
- Unscrew the stylus pin guide (see General layout of the stylus assembly in appendix)
- Remove the stylus, the spring and the core
- Clean all parts and remove the grease
- **Lubricate the stylus and the stylus pin guide using exclusively the oil supplied with your maintenance kit.**
- Reassemble the machine and **manually fasten the stylus pin guide**

Note : please pay attention to the direction when reassembling the core (see General layout of the stylus assembly in appendix)

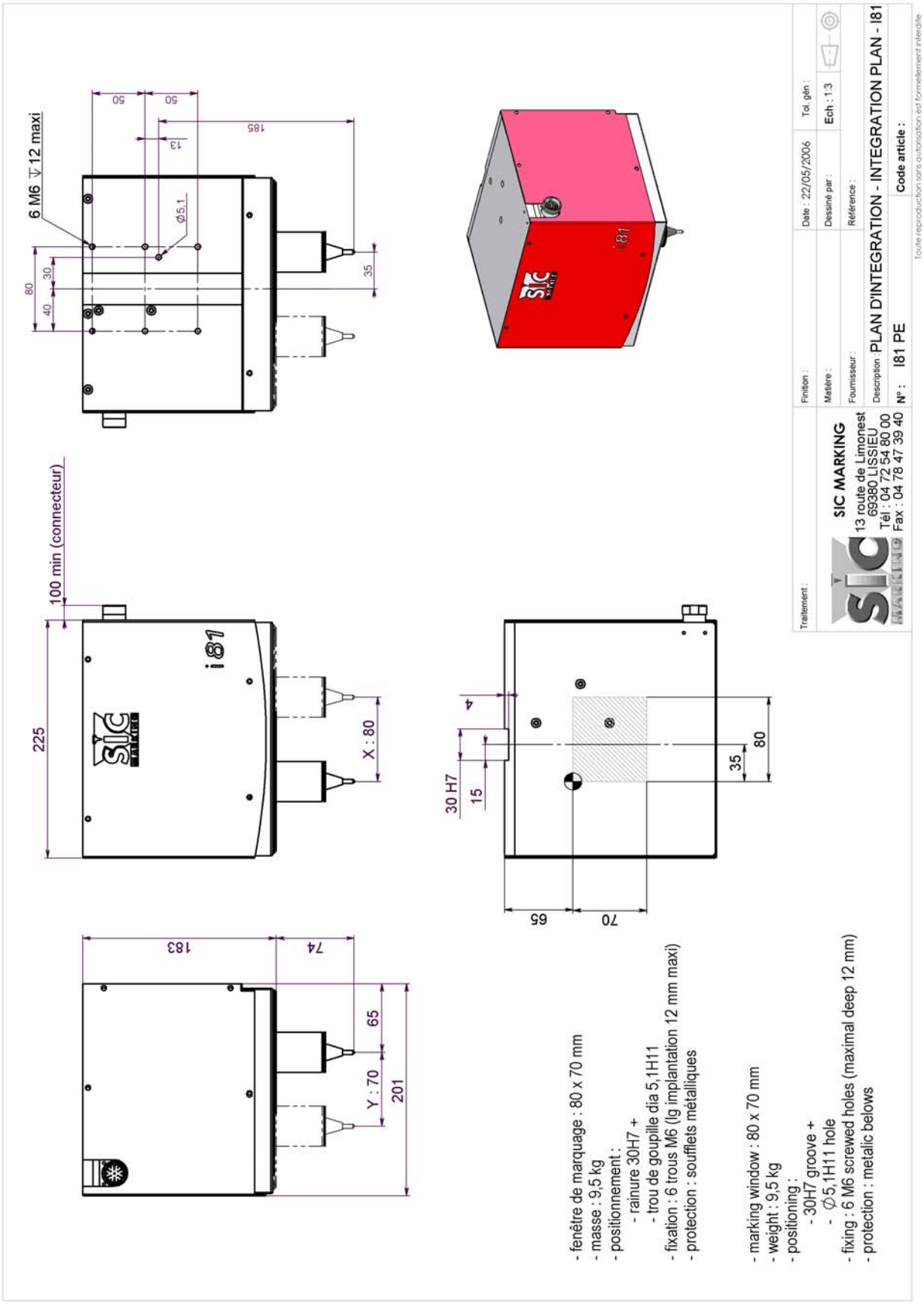
4. TROUBLE SHOOTING

Problem	Check	Solution
The stylus assembly does not move on the X and Y axes	Check that : - The controller is on - A marking program is loaded and the controller is in marking mode (see software manual) - The machine is correctly linked to the controller - The cable is in working condition - The control handbox is connected (except for gun marking machines) - The movements on the X and Y axes are not blocked when the machine is on.	 - See controller manual - Load a program and set the machine in marking mode - Reposition the connectors - Open the connectors and check the wires either visually or with a ohmmeter. - Reposition the connectors - Remove any obstacle or clean the guiding rails and the driving mechanisms
The marking head does not go back home before marking	Check that : - The sensors cables are correctly connected and in good working condition - The origin sensors work properly (in home position, the red lights located on the sensors are off, otherwise they are on). - The driving belts are not broken on the integrated type or column type machines	 - Reconnect the wires or replace the damaged cables - Replace the sensors - Replace the damaged belt
The stylus assembly moves (X,Y) but the stylus does not	Check that : - The stylus is not blocked by anything - The solenoid is in good working condition (no overheating, short circuit…)	 - Disassemble the machine, clean it, lubricate it with the oil provided in your maintenance kit and re-assemble (see General layout in appendix) - Replace the solenoid
The marking quality is terrible : - The dots are not aligned - The impacts are not regular	Check that : - The part is correctly maintained during the entire marking process and the machine is correctly fastened - The marking speed is not too high compared with the marking to be made (size) - There is no backlash in the X and Y axes - The distance between the stylus and the part is correct - The stylus pin is in good working condition - The stylus can move correctly - There is no backlash between the stylus pin guide and the stylus	 - Redo the marking after fastening the part and/or the machine properly - Reduce the marking speed - Please contact the after sales service - Change the distance (see manual) - Replace the stylus - Clean the stylus pin guide and the stylus - Change the stylus pin guide

If you have checked everything and the system still does not work, please contact our after sales services.

APPENDIX

1. I81


6 M6 ⊽12 maxi
50
50
185
13
Ø5.1
80
30
40
35
100 min (connecteur)
225
i81
X : 80
30 H7
15
4
35
80
65
70
183
74
Y : 70
65
201
- fenêtre de marquage : 80 x 70 mm
- masse : 9,5 kg
- positionnement :
- rainure 30H7 +
- trou de goupille dia 5,1H11
- fixation : 6 trous M6 (lg implantation 12 mm maxi)
- protection : soufflets métalliques
- marking window : 80 x 70 mm
- weight : 9,5 kg
- positioning :
- 30H7 groove +
- Ø5,1H11 hole
- fixing : 6 M6 screwed holes (maximal deep 12 mm)
- protection : metalic belows
Traitement :
Finition :
Date : 22/05/2006
Tol. gén :
Matière :
Dessiné par :
Ech : 1:3
Fournisseur :
Référence :
SIC MARKING
13 route de Limonest
69380 LISSIEU
Tél : 04 72 54 80 00
Fax : 04 78 47 39 40
Description : PLAN D'INTEGRATION - INTEGRATION PLAN - I81
N° : I81 PE
Code article :
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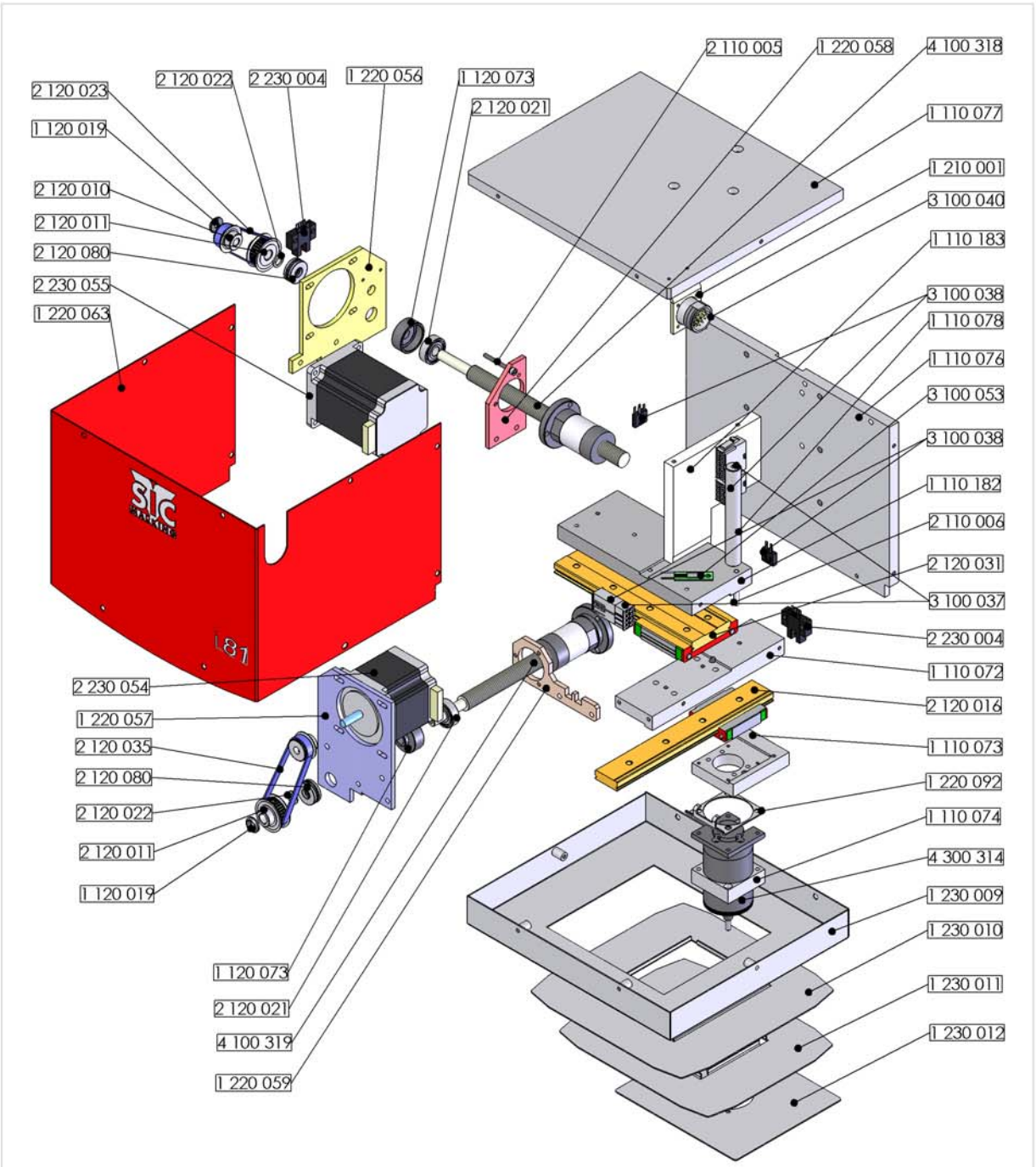

REV E

Traitement :	Finition :	Date : 19/05/2006	Tol. gén :
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	Fournisseur :	Référence :	
	Description : NOMENCLATURE - OVERVIEW - I81		
	N° : I81 NOM	**Code article :**	

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13 route de Limonest
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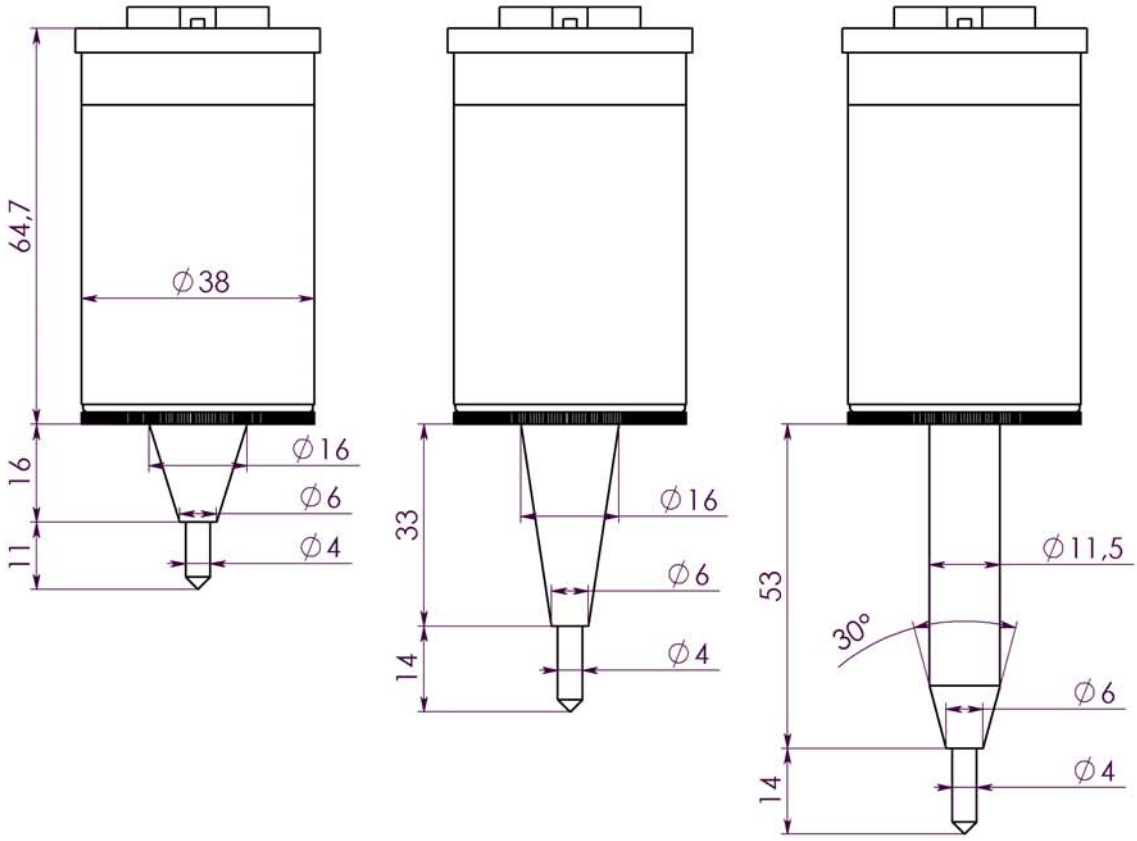

L 60 **L 80** **L 100**

course : 9 mm max / STROKE : 9 mm max

Traitement :	Finition :	Date : 22/05/2006	Tol. gén :
SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 1:1
	Fournisseur :	Référence :	
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	N° : 4 300 314 PE	**Code article :**	

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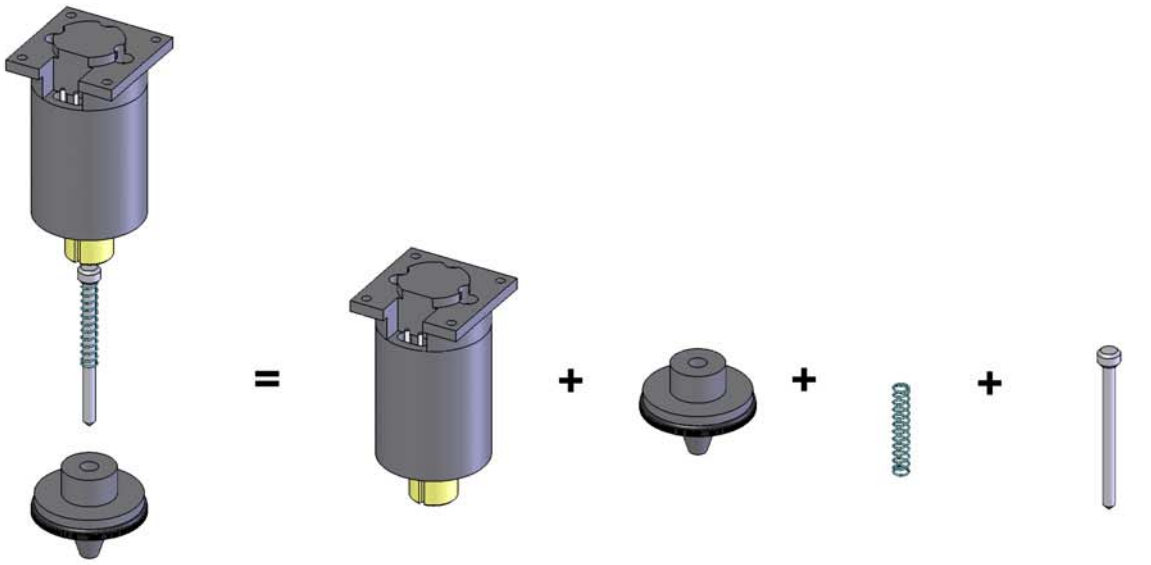

A1	P1	P2			
(A1 = 3200003 + P1 + 2120006 + P2)		code	lg	angle	type
4 300 314	1 120 017	1 120 012	60	90	
4 300 332		1 120 057	60	90	aéro
		1 120 109	60	120	
4 300 335		1 120 054	60	120	aéro
4 300 315	1 120 023	1 120 013	80	90	
4 300 333		1 120 058	80	90	aéro
		1 120 152	80	120	
4 300 336		1 120 055	80	120	aéro
4 300 316	1 120 024	1 120 014	100	90	
4 300 334		1 120 059	100	90	aéro
		1 120 153	100	120	
4 300 337		1 120 056	100	120	aéro

Traitement :	Finition :	Date : 22/05/2006	Tol. gén :
SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 1:2
	Fournisseur :	Référence :	
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	N° : 4 300 314 NOM	**Code article :**	

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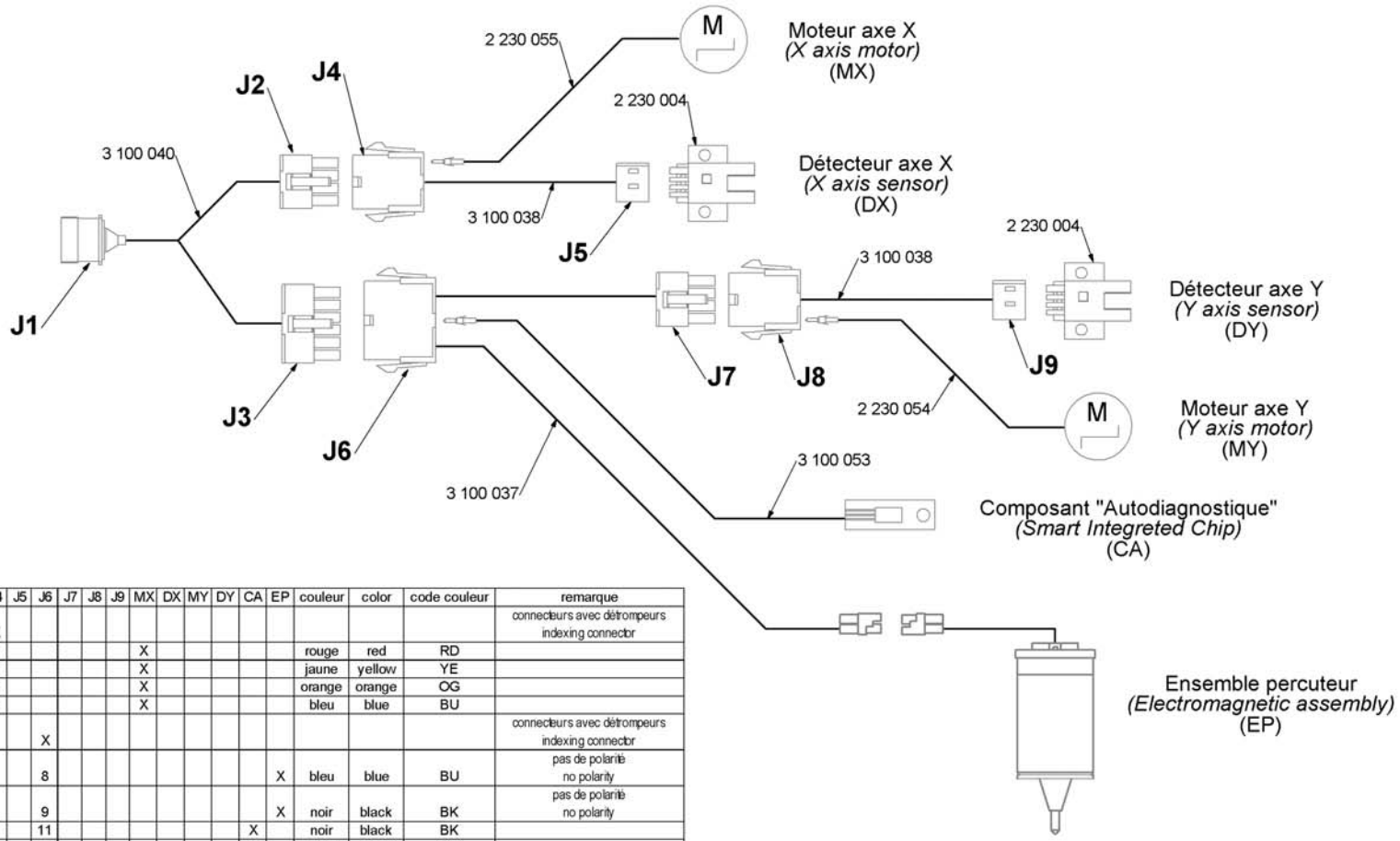

J1	J2	J3	J4	J5	J6	J7	J8	J9	MX	DX	MY	DY	CA	EP	couleur	color	code couleur	remarque
	X		X															connecteurs avec détrompeurs indexing connector
			1						X						rouge	red	RD	
			2						X						jaune	yellow	YE	
			3						X						orange	orange	OG	
			4						X						bleu	blue	BU	
		X			X													connecteurs avec détrompeurs indexing connector
					8									X	bleu	blue	BU	pas de polarité no polarity
					9									X	noir	black	BK	pas de polarité no polarity
					11								X		noir	black	BK	
					12								X		bleu	blue	BU	
						X	X											connecteurs avec détrompeurs indexing connector
							1				X				rouge	red	RD	
							2				X				jaune	yellow	YE	
							3				X				bleu	blue	BU	
							4				X				orange	orange	OG	
								X				X						connecteurs avec détrompeurs indexing connector
				X						X								connecteurs avec détrompeurs indexing connector

Code couleur selon IEC757

Traitement :	Finition :	Date : 22/05/2006	Tol. gén :
SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 1:1
	Fournisseur :	Référence :	
	Description : SCHEMA ELECTRIQUE - WIRING PLAN - I81		
	N° : I81 SHE	Code article :	

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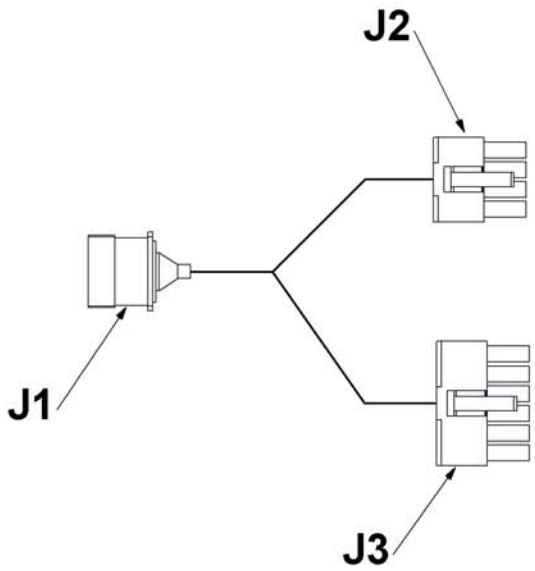

J1	J2	J3	couleur	color	code couleur	remarque
1						non connecté no connection
2						non connecté no connection
3		1	rouge - gris	red - grey	RD - GY	
4		2	vert	green	GN	
5		3	gris	grey	GY	
6		9	bleu	blue	BU	
7		4	marron	brown	BN	
8	1		noir	black	BK	
9	2		noir - blanc	black - white	BK - WH	
10	3		vert - bleu	green - blue	GN -BU	
11	4		jaune - noir	yellow - black	YE - BK	
12		8	vert - jaune	green - yellow	GN - YE	
13	5		jaune - violet	yellow - purple	YE - VT	
13		5	jaune - violet	yellow - purple	YE - VT	
14	6		vert - marron	green - brown	GN - BN	
14		6	vert - marron	green - brown	GN -BN	
15		7	jaune	yellow	YE	
16	7		blanc	white	WH	
17		11	bleu - gris	blue - grey	BU - GY	
18		12	rouge - blanc	red - white	RD - WH	
19						non connecté no connection

Code couleur selon IEC757

Traitement :	Finition :	Date : 12/04/2006	Tol. gén :
SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 1:1
	Fournisseur :	Référence :	
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	N° : 3 100 040 SHE	**Code article :**	

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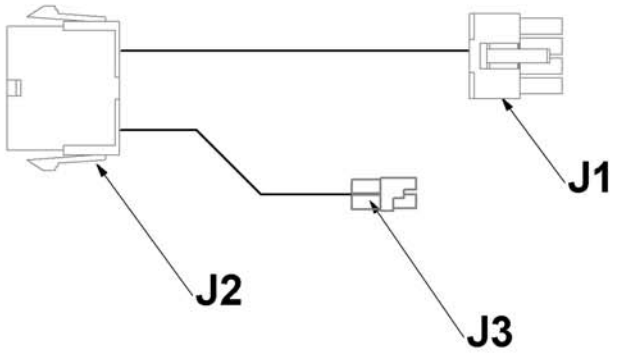

J1	J2	J3	couleur	color	code couleur	remarque
1	1		rose	pink	PK	
2	2		jaune	yellow	YE	
3	3		bleu	blue	BU	
4	4		blanc	white	WH	
5	5		marron	brown	BN	
6	6		gris	grey	GY	
7	7		vert	green	GN	
	8	X	noir	black	BK	pas polarité / no polarity
	9	X	noir	black	BK	pas polarité / no polarity
	10					
	11					
	12					

Code couleur selon IEC757

Traitement :	Finition :	Date : 20/04/2006	Tol. gén :
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	Fournisseur :	Référence :	
	Description : SCHEMA ELECTRIQUE - WIRING PLAN - 3 100 037		
	N° : 3 100 037 SHE	**Code article :**	

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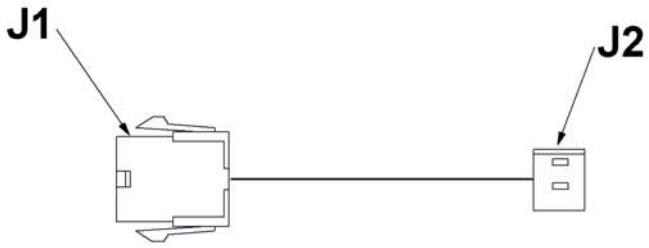

J1	J2	couleur	color	code couleur	remarque
5	L & "+"	marron	brown	BN	
6	"-"	blanc	white	WH	
7	OUT	vert	green	GN	

Code couleur selon IEC757

Traitement :	Finition :	Date : 12/04/2006	Tol. gén :
SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 1:1
	Fournisseur :	Référence :	
	Description : SCHEMA ELECTRIQUE - WIRING PLAN - 3 100 038		
	N° : 3 100 038 SHE	**Code article :**	

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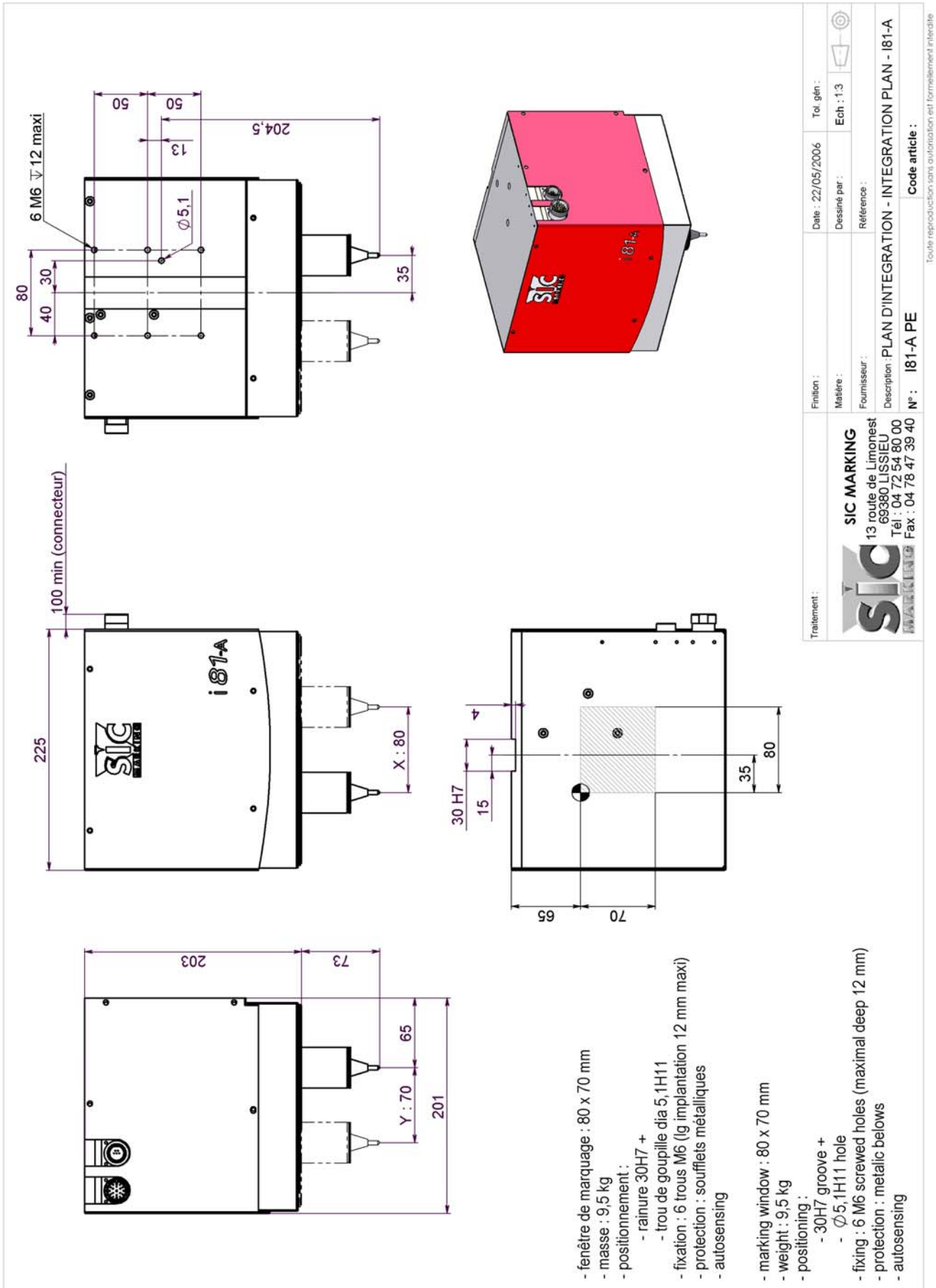
câble de liaison (5 ou 10 mètres)
robotic cable (5 or 10 meters)

connecteur SUB D 25 male	***connecteur 19 voies***	***couleur***	***color***	***Code couleur***
1	12	vert & marron	green – brown	GN – BN
2	12	vert & blanc	green - white	GN – WH
4	3	rouge & marron	red – brown	RD – BN
5	4	rouge & blanc	red – white	RD – WH
6	5	bleu & marron	blue – brown	BU – BN
7	7	bleu & blanc	blue – white	BU – WH
8	8	rose	pink	PK
9	9	gris	grey	GY
10	10	rose & blanc	pink – white	PK – WH
11	11	rose & gris	prink – grey	PK – GY
12	1	blanc	white	WH
13	2	marron	brown	BN
14	12	jaune	yellow	YE
15	12	vert	green	GN
16	18	rouge & bleu	red – blue	RD – BU
17	13	rouge	red	RD
18	14	bleu	blue	BU
19	17	gris & rose	grey – pink	GY – PK
20	15	noir	black	BK
21	16	violet	purple	VT
22	6	jaune & marron	yellow – brown	YE – BN
23	6	jaune & blanc	yellow – white	YE – WH
24	6	blanc & gris	white – grey	WH – GY
25	6	gris & marron	grey - brown	GY – BN

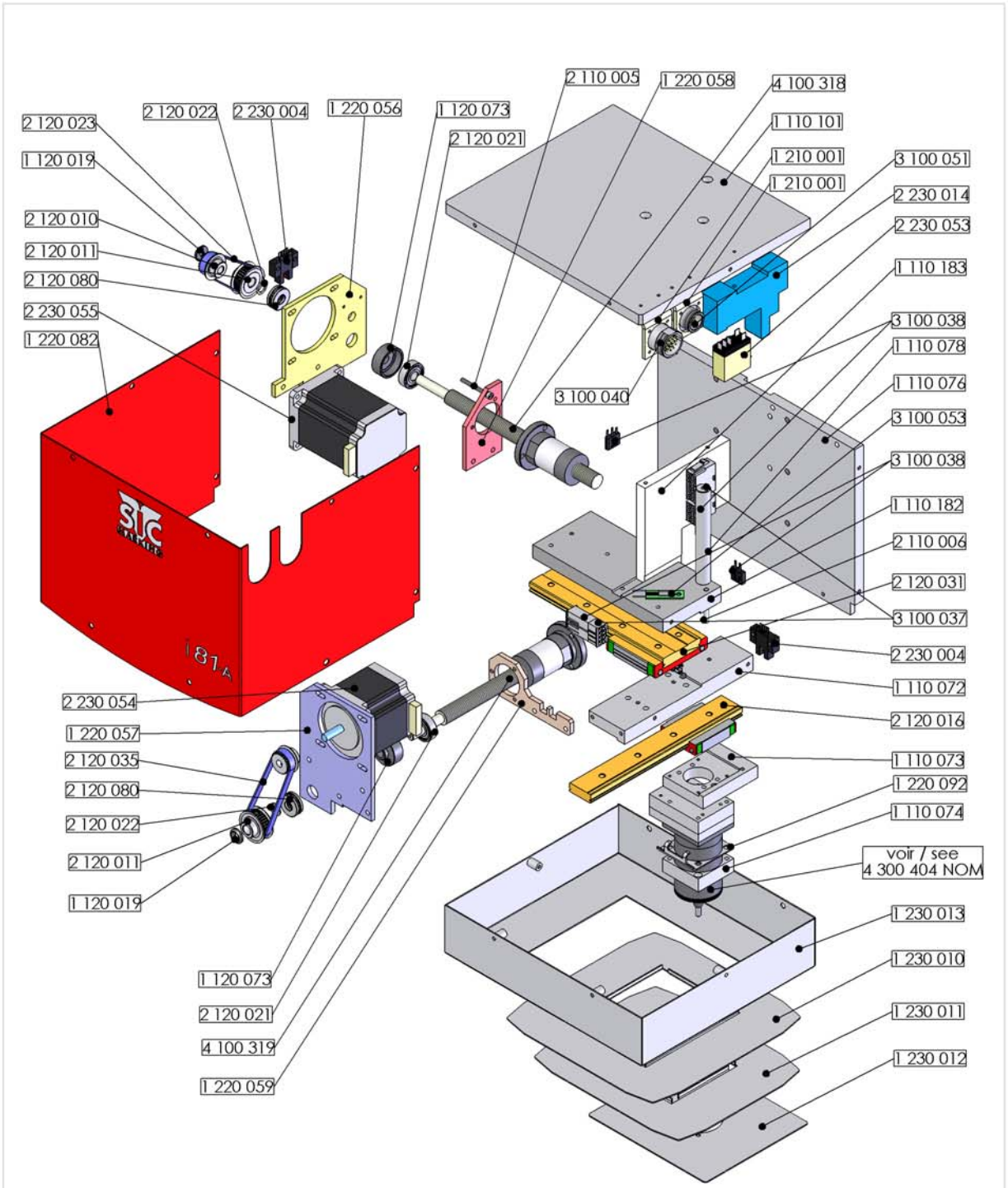
Code couleur suivant IEC757

2. I81-A (SPECIFICITES)



- fenêtre de marquage : 80 x 70 mm
- masse : 9,5 kg
- positionnement :
  - rainure 30H7 +
  - trou de goupille dia 5,1H11
- fixation : 6 trous M6 (lg implantation 12 mm maxi)
- protection : soufflets métalliques
- autosensing

- marking window : 80 x 70 mm
- weight : 9,5 kg
- positioning :
  - 30H7 groove +
  - Ø5,1H11 hole
- fixing : 6 M6 screwed holes (maximal deep 12 mm)
- protection : metalic belows
- autosensing



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SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 1:4
	Fournisseur :	Référence :	
	Description : NOMENCLATURE - OVERVIEW - I81-A		
	N° : I81-A NOM	**Code article :**	

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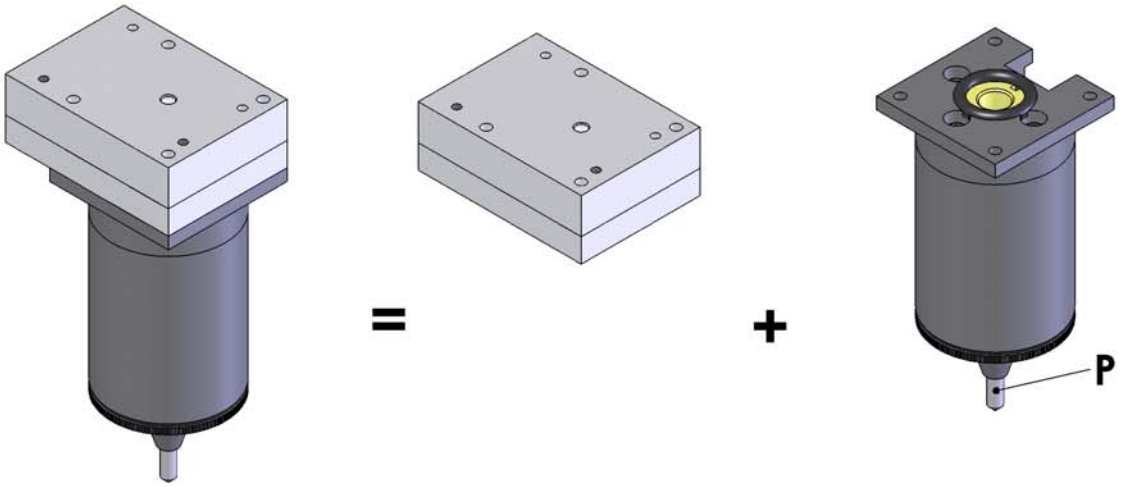

A1 **4 400 220** **A2**

A1	A2		P	
(A1 = A2 + 4 400 220)		lg	angle	type
4 300 404	4 300 356	60	90	0
4 300 405	4 300 358	60	90	aéro
4 300 406	4 300 412	60	120	0
4 300 407	4 300 359	60	120	aéro
4 300 408	4 300 357	80	90	0
4 300 409	4 300 360	80	90	aéro
4 300 410	4 300 413	80	120	0
4 300 411	4 300 361	80	120	aéro
4 300 438	4 300 437	100	90	0
4 300 431	4 300 430	100	120	0

Traitement :	Finition :	Date : 18/04/2006	Tol. gén :
SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 2:3
	Fournisseur :	Référence :	
	Description : NOMENCLATURE - OVERVIEW - 4 300 404		
	N° : 4 300 404 NOM	**Code article :**	

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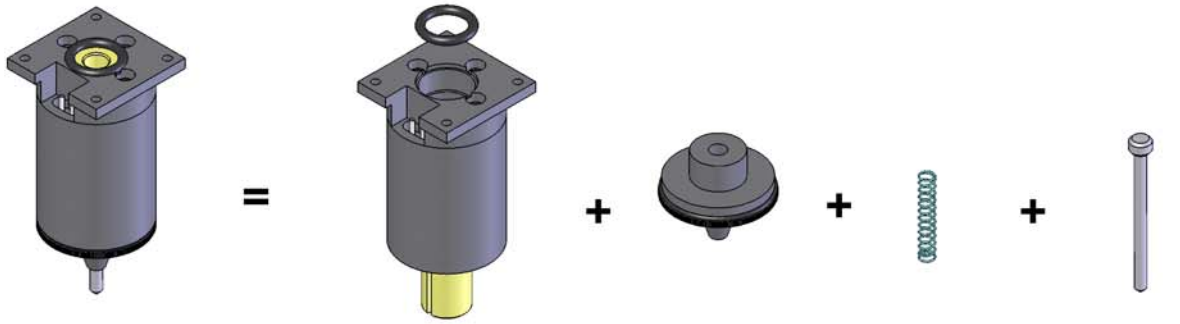

A1	P1	P2			
(A1 = 3200008 + P1 + 2120006 + P2)		code	lg	angle	type
4 300 356	1 120 017	1 120 012	60	90	0
4 300 358		1 120 057	60	90	aéro
4 300 412		1 120 109	60	120	0
4 300 359		1 120 054	60	120	aéro
4 300 357	1 120 023	1 120 013	80	90	0
4 300 360		1 120 058	80	90	aéro
4 300 413		1 120 152	80	120	0
4 300 361		1 120 055	80	120	aéro
4 300 437	1 120 024	1 120 014	100	90	0
4 300 430		1 120 153	100	120	0

Traitement :	Finition :	Date : 19/04/2006	Tol. gén :
SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 1:2
	Fournisseur :	Référence :	
	Description : NOMENCLATURE - OVERVIEW - 4 300 356		
	N° : 4 300 356 NOM	**Code article :** 4 300 356	

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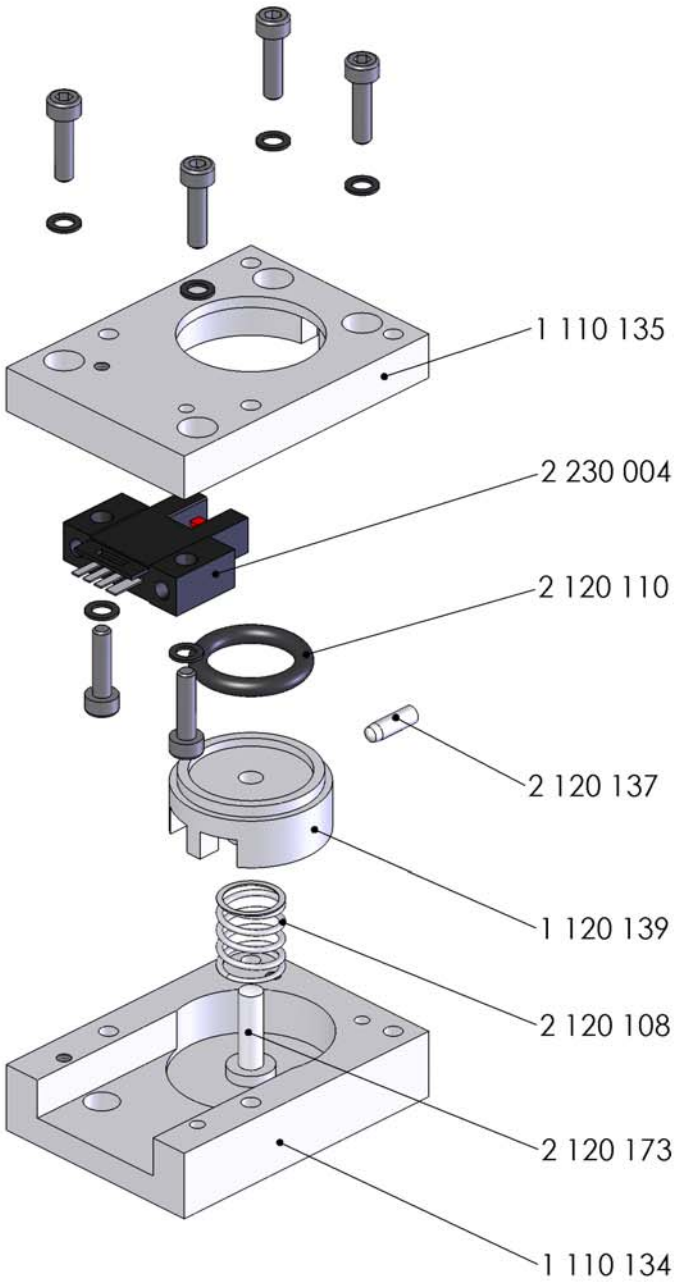

Traitement :	Finition :	Date : 19/04/2006	Tol. gén :
SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 1:1
	Fournisseur :	Référence :	
	Description : NOMENCLATURE - OVERVIEW - 4 400 220		
	N° : 4 400 220 NOM	**Code article :**	

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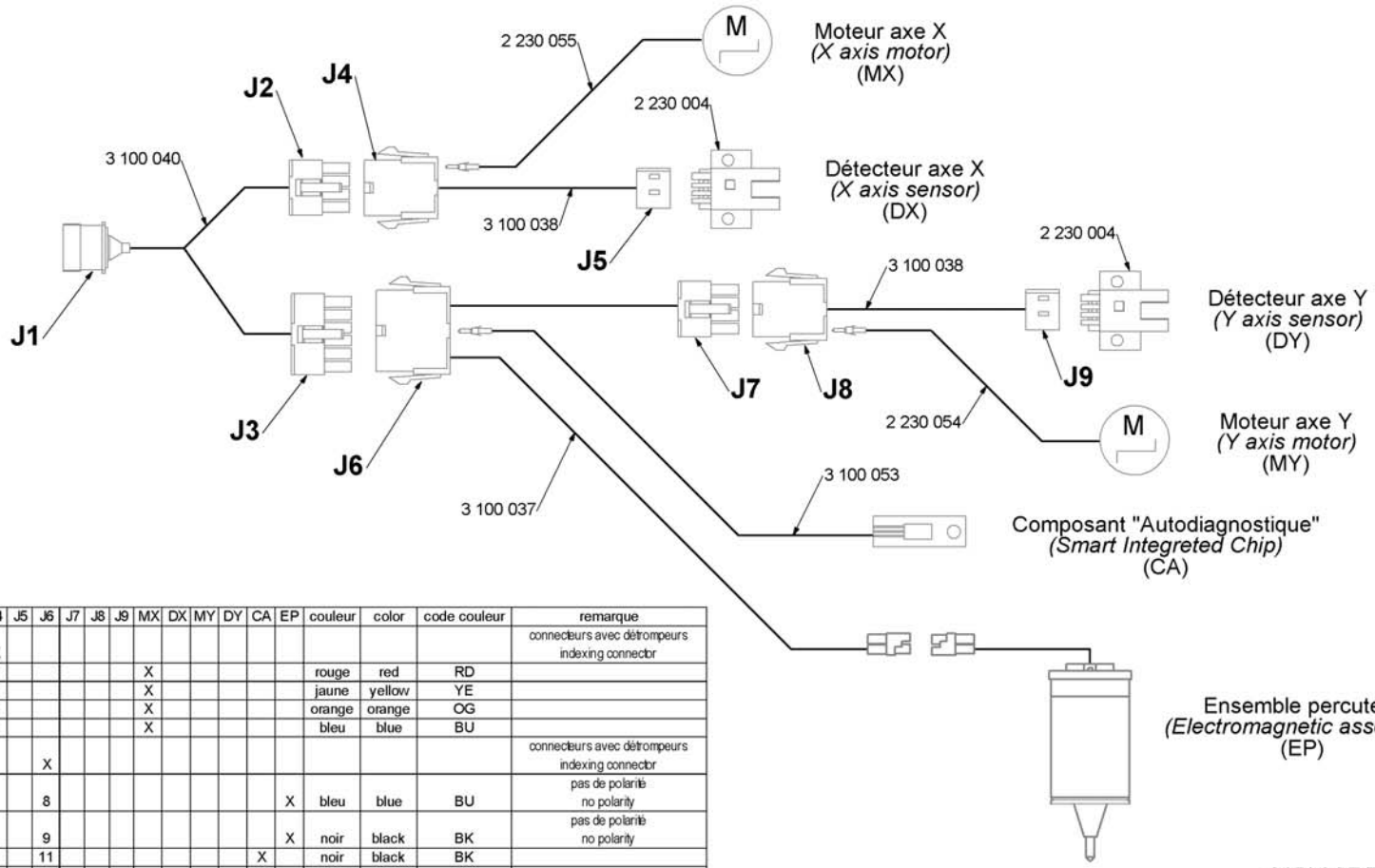

J1	J2	J3	J4	J5	J6	J7	J8	J9	MX	DX	MY	DY	CA	EP	couleur	color	code couleur	remarque
	X		X															connecteurs avec détrompeurs indexing connector
			1						X						rouge	red	RD	
			2						X						jaune	yellow	YE	
			3						X						orange	orange	OG	
			4						X						bleu	blue	BU	
		X			X													connecteurs avec détrompeurs indexing connector
					8									X	bleu	blue	BU	pas de polarité no polarity
					9									X	noir	black	BK	pas de polarité no polarity
					11								X		noir	black	BK	
					12								X		bleu	blue	BU	
						X	X											connecteurs avec détrompeurs indexing connector
							1				X				rouge	red	RD	
							2				X				jaune	yellow	YE	
							3				X				bleu	blue	BU	
							4				X				orange	orange	OG	
								X				X						connecteurs avec détrompeurs indexing connector
				X						X								connecteurs avec détrompeurs indexing connector

Code couleur selon IEC757

CABLAGE TABLE CROISEE
(X&Y MECHANISM WIRING)
(1 / 2)

Traitement :	Finition :	Date : 22/05/2006	Tol. gén :
SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 1:1
	Fournisseur :	Référence :	
	Description : SCHEMA ELECTRIQUE - WIRING PLAN - I81-A		
	N° : I81-A SHE (1/2)	Code article :	

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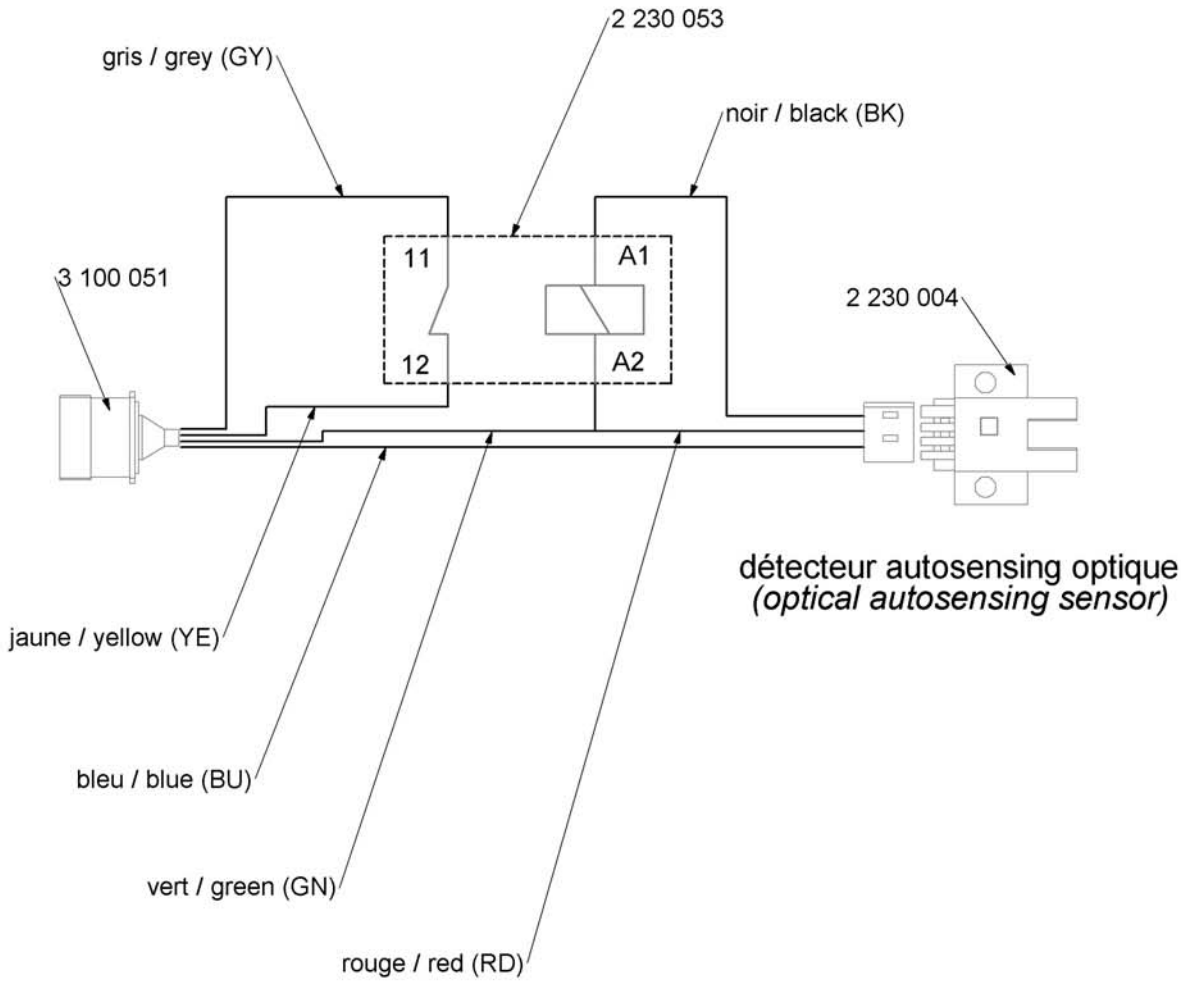

Code couleur selon IEC757

CABLAGE AUTOSENSING OPTIQUE
(AUTOSENSING OPTICAL SENSOR WIRING)
(2 / 2)

Traitement :	Finition :	Date : 22/05/2006	Tol. gén :
SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 1:1
	Fournisseur :	Référence :	
	Description : SCHEMA ELECTRIQUE - WIRING PLAN - I81-A		
	N° : I81-A SHE (2/2)	**Code article :**	

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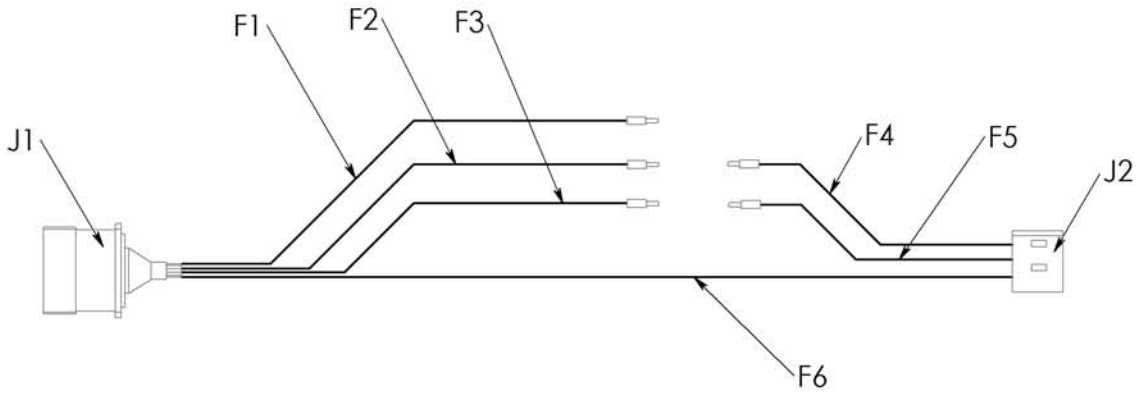

J1	J2	F1	F2	F3	F4	F5	F6	couleur	color	code couleur	remarque
1	GND						X	bleu	blue	BU	
2				X				vert	green	GN	
3		X						gris	grey	GY	
4			X					jaune	yellow	YE	
	OUT				X			noir	black	BK	
	L&+					X		rouge	red	RD	

Traitement :	Finition :	Date : 19/04/2006	Tol. gén :
SIC MARKING 13 route de Limonest 69380 LISSIEU Tél : 04 72 54 80 00 Fax : 04 78 47 39 40	Matière :	Dessiné par :	Ech : 1:1
	Fournisseur :	Référence :	
	Description : SCHEMA ELECTRIQUE - WIRING PLAN - 3 100 051		
	N° : 3 100 051 SHE	**Code article :**	

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câble autosensing (5 ou 10 mètres)
autosensing cable (5 or 10 meters)

connecteur SUB D 37 male	***connecteur 5 voies***	***couleur***	***color***	***Code couleur***
18	1	blanc	white	WH
19	2	marron	brown	BN
9	3	vert	green	GN
8	4	jaune	yellow	YE

Code couleur suivant IEC757